

REMARKS

By this amendment, applicants have amended claim 30 to more clearly define their invention.

In response to the indication in numbered section 1 of the office action that the declaration is defective for not identifying the city and either state or foreign country of residence of each inventor, applicants are submitting herewith an application data sheet providing, inter alia, the city and state or foreign country of each inventor.

Claims 1, 3, 5 - 11, 13 - 15, 17, 18, 30 and 32 - 34 stand rejected under 35 USC 103(a) as allegedly being unpatentable over United States Patent No. 4,303,366 to Hinchcliffe et al (Hinchcliffe '366), in view of United States Patent No. 4,575,301 to Lodi et al. Applicants traverse this rejection and request reconsideration thereof.

The present invention relates to an apparatus for unloading containers. As shown, by way of example only, in the drawings of the subject application, trays (10) with open tops and filled with rod-like articles are delivered upright to a tray carriage by a conveyor (14). The tray carriage (18) is mounted on two linear slideways (20) for translational movement. The tray carriage (18) pivotably supports a tray carrier (24) which is provided with clamps (32) arranged to clamp a tray (10), and a release plate (40) which is arranged to cover the open top of the tray. The tray carrier (24) is adapted to rotate a tray held therein through about 180°, while independently and concurrently the tray is translated by virtue of the linear slideways. In use, the filled tray is removed from the conveyor (14) and undergoes, simultaneously, both linear and rotational movement so as to deliver the inverted tray to a hopper device. The release plate (40) is then removed from the open top of the inverted tray and the rod-

like articles are delivered into the hopper. When the tray is empty, the tray carriage (18) and carrier (24) move the tray to an intermediate position at which the tray is delivered to a removal conveyor (48) by suitable means (46).

Hinchcliffe et al. '366 disclose two devices for the delivery of cigarettes from open-top trays. The first is a device in which loaded trays (14) are delivered one-by-one by a conveyor (10) onto a platform. The platform lifts the tray slightly and the top of the tray is then clamped between two elements (20). A retractable safety cover plate (22) covers the open top of the tray. The platform (16), clamping elements (20), safety plate (22) and tray (14) are then rotated about an axis parallel to the cigarettes in the tray such that the tray is inverted and positioned over first and second delivery bands (26, 28). The safety plate (22) is retracted and the cigarettes are unloaded between the two delivery bands. The platform (16) and clamping elements (20) are then retracted, moving the empty tray away from the delivery bands. The tray is then rotated through 180° and released by the platform and clamping elements onto an elevator (38). The elevator then lowers the empty tray onto a removal conveyor (40).

In the second device disclosed by Hinchcliffe et al '366, full trays (200) are carried on a conveyor (202). The trays are provided with a hinged closure member (214) at one side. The full trays are received by a support and an L-shaped bracket (204) which is pivoted at one extremity (206) of an arm of the L-shaped bracket. Each tray in turn is tilted about the pivot (206) upon which the bracket is mounted, and the closure member engages a stop (220) which results in the opening of the trays. Consequently the contents of the tray are unloaded, and are carried away by a stack conveyor (222). When the tray is empty, it is tilted back to its original position and transferred to a removal conveyor.

The Hinchcliffe et al. '366 patent does not disclose a device for the delivery of rod-like articles in which the articles, contained in a tray, may be delivered to a required position by concurrent linear and rotational movement as per the apparatus of amended claim 1. The apparatus of the present invention is capable of moving a tray of rod-like articles with simultaneous rotational and linear components of motion. Further, Hinchcliffe et al. '366 does not disclose a device capable of independent linear and rotational movement. In Hinchcliffe et al '366, the holder of the tray undergoes sequential rotational and translational movement. It is submitted that since the commencement of a particular mode of movement is dependent on a previous mode having been completed, the two movements are linked and cannot therefore be independent. In the present invention, the rotational and translational motions of the tray are independently controlled and are not interdependent. It is therefore submitted that the present invention is not disclosed and would not have been suggested by Hinchcliffe et al '366.

The Lodi et al. patent disclose an automatic feeder device for feeding cigarettes from trays into a hopper (1) before packing the cigarettes into packs. The device comprises a first conveyor (4) for transporting loaded trays (2') of cigarettes towards the hopper. The loaded trays are transferred from the conveyor onto a tray carrying case (17) provided with an upper retractable lid (20) and mounted by two stud-like shafts on a pair of slides (12) which themselves are mounted on an oblique, longitudinally mounted side-frame (8). The side-frame is arranged to be pivotable about a transverse axis and is positioned such that it has a first upper end above the hopper and a second lower end positioned above a second return conveyor (5). A loaded tray (2') within the tray carry case (17) is pushed by the slides (12) towards the first upper end of the side frame and the hopper. As the tray case approaches

the hopper, two toothed pinions (28) mounted on the stud-like shafts engage a pair of toothed racks (29) mounted on the side-frame. The pinions and racks are arranged so that the tray and tray case are inverted as they approach the hopper. When the tray is inverted the retractable lid (20) prevents the contents of the tray from falling out. The upper end of the side frame is then lowered so as to bring the tray closer to the hopper. The retractable lid (20) provided on the tray case is retracted, and the contents of the tray fall into the hopper (1). When the tray is empty, the side-frame (8) is raised and the tray and tray carrier are moved, by way of the slides, back down the side frame (8). The tray is returned to its original orientation as it moves down the side frame, and is then released by the tray case (17) onto a slide (6) disposed beneath the side frame (8). The tray travels down the slide and is transferred onto a removal conveyor (5).

In Lodi et al., a magazine undergoes contemporaneous rotational and linear movement, in that the magazine, loaded in a tray carry case (17), undergoes linear motion by virtue of the slides (12) and rotational motion by dint of engagement of the toothed pinions (28) with the toothed racks (29). However the rotational motion of the magazine is entirely dependent on the translational motion of the tray carrying case. It should be noted that if the magazine did not undergo linear motion, then the toothed wheels and racks would not cause rotation of the magazine. Thus the linear motion and rotational motion of the magazine are not independently controlled. In the present invention, the rotational and linear motion of the tray are independent, and it is therefore submitted that the present invention is not suggested by the disclosure of Lodi et al.

Thus, the Hinchcliffe, et al '366 patent fails to disclose concurrent rotation and translation of the carrier, while the Lodi et al patent fails to disclose independent

translation and rotation of the carrier 17. Indeed, the apparatus of Lodi, et al depends on interlinked rotation and translation, in that translation of the carrier 17 causes rotation by means of a rack and pinion mechanism

The disclosure of Hinchcliffe et al '366 and Lodi et al are therefore incompatible in that while Lodi et al requires rotation and translation to bring the carrier 17 from the receiving position to the unloading position, Hinchcliffe, et al '366 requires only rotation. If the apparatus of Hinchcliffe, et al '366 were to be modified as suggested by the Examiner in the outstanding office action by translating and rotating the carrier (16, 28, 20a, 20b) concurrently, then the carrier would be misaligned with the band conveyors 26, 28 for removal of articles from the container. Therefore, the combination of Hinchcliffe et al '366 and Lodi et al fails to suggest independent, concurrent translational and rotational movement of a carrier for a container of rod-like articles from a receiving position to an unloading position. Accordingly, the presently claimed invention is patentable of Hinchcliffe et al '366 and Lodi et al.

Claims 1 and 3 - 11 stand rejected under 35 USC 103(a) as being unpatentable over United States Patent No. 3,190,478 to Schermund in view of Lodi et al. Applicants traverse this rejection and request reconsideration thereof.

The Schermund patent discloses a feeding device for feeding elongated articles into a hopper (96). Magazines (11), filled with the elongated articles, and held in carriers (63) at an oblique angle, are transported by a conveyor (64) to a lift mechanism (66). The lift mechanism serially removes the filled magazines (11) from the carriers (63) and raises them up such that they enter through a base of a frame assembly (1, 2). The frame assembly has separate front (1) and rear (2) parts and a lid member (5), and is rotatably mounted on a transverse axis. A filled magazine,

together with the frame assembly (1, 2), is then rotated about the axis, by way of a co-axial toothed wheel (57) attached to the assembly engaging with a moving toothed rack (56), into a first position such that the lid member is disposed at the base of the frame assembly, the lid member (5) preventing the elongated articles from falling out of the magazine. The magazine and the front part of the frame assembly undergo translational transverse movement in a first direction by way of a slide (19) attached to a conveyor chain (14), which chain engages the front part (1) of the frame assembly. The front part (1) of the frame assembly and the filled magazine are moved to a second position over the hopper, at which point the lid member (5) is removed by a suitable mechanism so as to allow the elongated members held within the magazine to fall into the hopper (96). The slide (19), which is still engaged with the front part (1), is returned to its original position, while the magazine remains at the second position. At the same time, a pair of clip slides (36) are moved into a position at which they may engage the magazine in the second position. When the magazine is empty, the clip slides (36) engage the empty magazine and transport it in the first direction to a third position. At the third position, the magazine is transferred to a removal conveyor by a suitable means.

The Schmermund patent does not disclose a device for the delivery of rod-like articles in which the articles, contained in a tray, may be delivered to a required position by concurrent linear and rotational movement as per the apparatus of amended claim 1. The apparatus of the present invention is capable of moving a tray of rod-like articles with simultaneous rotational and linear components of motion. Further, Schmermund does not disclose a device capable of independent linear and rotational movement. In Schmermund, the holder of the magazine undergoes sequential rotational and translational movement. It is submitted that since the

commencement of a particular mode of movement is dependent on a previous mode having been completed, the two movements are linked and cannot therefore be independent. In the present invention, the rotational and translational motions of the tray are independently controlled and are not interdependent. It is therefore submitted that the present invention is not suggested by Schmermund.

Thus, Schmermund also fails to disclose a carriage on which the carrier is pivotably supported. In Schmermund, the carrier 1, 2, 5 itself is capable of both rotational and translational movement, and no separate carriage on which the carrier is mounted is provided.

As with the previous suggested combination, the alleged combination of Schmermund and Lodi et al fails to suggest independent concurrent rotation and translation of a carrier for a container of rod-like articles between a receiving position and unloading position at which the articles are unloaded from the container.

Claim 16 stands rejected under 35 USC 103(a) as being unpatentable over Hinchcliffe et al '366 in view of Lodi et al and further in view of United States Patent No. 3,985,252 to Hinchcliffe et al (Hinchcliffe et al '252). Applicants traverse this rejection and request reconsideration thereof.

The patent to Hinchcliffe et al '252 has been cited by the Examiner as allegedly showing various controls used to ensure that the level of articles in a conveying path remains constant with that of the conveyors. However, even assuming, arguendo, the Hinchcliffe et al '252 patent to disclose the feature alleged by the Examiner, nothing in Hinchcliffe et al '252 would have remedied any of the basic deficiencies noted above with respect to Hinchcliffe et al '366 and Lodi et al. Accordingly, claim 16 is patentable over the proposed combination of references, at least for the reasons noted above.

Applicants note with appreciation the indication of allowable subject matter in claims 19 - 27 (see numbered section 7 of the office action) and claims 12, 28 and 31 (see numbered section 8 of the office action). However, in view of the foregoing amendments and remarks, it is submitted all of the claims now in the application are in condition for allowance.

In view of the foregoing amendments and remarks, favorable reconsideration and allowance of all of the claims now in the application are requested.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 912.39939X00), and please credit any excess fees to such deposit account.

Respectfully submitted,

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